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Issued March 15, 1911.

# United States Department of Agriculture,

DIVISION OF PUBLICATIONS—CIRCULAR No. 16.

JOS. A. ARNOLD, Editor and Chief.

WASHINGTON, D. C., *February 1, 1911.*

## PUBLICATIONS OF THE BUREAU OF ENTOMOLOGY.

**NOTE.**—Application for publications in this list should be made to the Editor and Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C. The editions of some of the publications are necessarily limited, and when the supply is exhausted and no funds are available for procuring additional copies, applicants are referred to the Superintendent of Documents, Government Printing Office, who has them for sale at a nominal price, under the law of January 12, 1895. Applicants are urgently requested to ask only for those publications in which they are particularly interested. The department can not undertake to supply complete sets, nor is it allowable to send more than one copy of any publication to an applicant.

### REPORTS.

Report of the Entomologist for the year 1908.

Same, 1909.

Same, 1910.

### BULLETINS (OLD SERIES).

[In applying for these bulletins the name of the bureau as well as the number of the bulletin should be given, as "Bureau of Entomology, Bulletin, O. S., No. 6."]

- Bul. 6. The Imported Elm Leaf-Beetle: Its Habits and Natural History and Means of Counteracting its Injuries.
- 7. The Pediculi and Mallophaga Affecting Man and the Lower Animals.
- 17. The Chinch Bug: A General Summary of its History, Habits, Enemies, and of the Remedies and Preventives to be Used Against It.
- 19. An Enumeration of the Published Synopses, Catalogues, and Lists of North American Insects, Together with Other Information Intended to Assist the Student of American Entomology.
- 22. Reports of Observations and Experiments in the Practical Work of the Division, Made under the Direction of the Entomologist.
- 24. The Bollworm of Cotton: A Report of Progress in a Supplementary Investigation of this Insect.
- 25. Destructive Locusts: A Popular Consideration of a Few of the More Injurious Locusts (or "Grasshoppers") of the United States, Together with the Best Means of Destroying Them.
- 29. Report on the Bollworm of Cotton.
- 31. Catalogue of the Exhibit of Economic Entomology at the World's Columbian Exposition, Chicago, Ill., 1893.

## BULLETINS (NEW SERIES).

[In applying for these bulletins the name of the bureau as well as the number of the bulletin should be given, as "Bureau of Entomology, Bulletin, N. S., No. 3."]

- Bul. 3.** The San Jose Scale: Its Occurrences in the United States, with a Full Account of its History and the Remedies to be Used Against It.
4. The Principal Household Insects of the United States.
  5. Insects Affecting Domestic Animals, an Account of Species of Importance in North America, with Mention of Related Forms Occurring on Other Animals.
  16. The Hessian Fly in the United States.
  22. Some Miscellaneous Results of the Work of the Division of Entomology.
  24. A List of Works on North American Entomology.
  25. Notes on the Mosquitoes of the United States: Giving Some Account of Their Structure and Biology, with Remarks on Remedies.
  26. Proceedings of the Twelfth Annual Meeting of the Association of Economic Entomologists.
  27. Some Insects Injurious to the Violet, Rose, and Other Ornamental Plants.
  28. Insect Enemies of Spruce in the Northeast.
  29. The Fall Army Worm and Variegated Cutworm.
  31. Proceedings of the Thirteenth Annual Meeting of the Association of Economic Entomologists.
  32. Insect Enemies of the Pine in the Black Hills Forest Reserve. An Account of Results of Special Investigations, with Recommendations for Preventing Losses.
  34. The Principal Insects Liable to be Distributed on Nursery Stock.
  35. Report on Codling-Moth, with Investigations in the Northwest during 1901.
  36. An Index to Bulletins Nos. 1-30 (new series) (1896-1901) of the Division of Entomology.
  37. Proceedings of the Fourteenth Annual Meeting of the Association of Economic Entomologists.
  38. Some Miscellaneous Results of the Work of the Division of Entomology.
  40. Proceedings of the Fifteenth Annual Meeting of the Association of Economic Entomologists.
  41. The Codling Moth.
  42. Some Insects Attacking the Stems of Growing Wheat, Rye, Barley, and Oats, with Methods of Prevention and Suppression.
  43. A Brief Account of the Principal Insect Enemies of the Sugar Beet.
  44. Some Miscellaneous Results of the Work of the Division of Entomology.
  45. The Mexican Cotton Boll Weevil.
  46. Proceedings of the Sixteenth Annual Meeting of the Association of Economic Entomologists.
  47. Catalogue of the Exhibit of Economic Entomology at the Louisiana Purchase Exposition, St. Louis, Mo., 1904.
  49. Report on the Habits of the Kelep, or Guatemala Cotton-boll-weevil Ant.
  51. The Mexican Cotton Boll-weevil.
  52. Proceedings of the Seventeenth Annual Meeting of the Association of Economic Entomologists.
  53. Catalogue of the Exhibit of Economic Entomology at the Lewis and Clark Centennial Exposition, Portland, Oreg., 1905.
  54. Some Miscellaneous Results of the Work of the Bureau of Entomology.
  55. The Rearing of Queen Bees.
  56. The Black Hills Beetle, with Further Notes on its Distribution, Life History, and Methods of Control.

- Bul. 58. Some Insects Injurious to Forests.  
 Same, Part 1.—The Locust Borer.  
 Same, Part 3.—Additional Data on the Locust Borer.  
 Same, Part 4.—The Southern Pine Sawyer.  
 Same, Part 5.—Some Insects Injurious to Forests.
59. Proliferation as a Factor in the Natural Control of the Mexican Cotton Boll Weevil.
60. Proceedings of the Eighteenth Annual Meeting of the Association of Economic Entomologists.
61. The Laws in Force Against Injurious Insects and Foul Brood in the United States.
62. The San Jose or Chinese Scale.
63. Papers on the Cotton Boll Weevil and Related and Associated Insects.  
 Same, Part 1.—Hibernation and Development of the Cotton Boll Weevil.  
 Same, Part 2.—Notes on the Biology of Certain Weevils Related to the Cotton Boll Weevil.  
 Same, Part 3.—An Ant Enemy of the Cotton Boll Weevil.  
 Same, Part 5.—Notes on the Pepper Weevil.  
 Same, Supplement.—Contents and Index.
64. Some Miscellaneous Results of the Work of the Bureau of Entomology.  
 Same, Part 1.—The Mexican Conchuela in Western Texas in 1905.  
 Same, Part 2.—Notes on the Economic Importance of Sowbugs.  
 Same, Part 3.—Notes on "Punkies."  
 Same, Part 4.—An Injurious North American Species of Apion with Notes on Related Forms.  
 Same, Part 5.—Insects Injurious to the Loco Weed.  
 Same, Part 6.—The Greenhouse Thrips.  
 Same, Part 7.—New Breeding Records of the Coffee-Bean Weevil.  
 Same, Part 8.—The Woolly White-Fly: A New Enemy of the Florida Orange.  
 Same, Part 9.—Notes on a Colorado Ant.  
 Same, Part 10.—The Pecan Cigar Case Borer.  
 Same, Supplement.—Contents and Index.
65. The Tobacco Thrips, a New and Destructive Enemy of Shade-Grown Tobacco.
66. Some Insects Injurious to Truck Crops.  
 Same, Part 1.—The Asparagus Miner. Notes on the Asparagus Beetles.  
 Same, Part 2.—The Water-cress Sowbug. The Water-cress Leaf-beetle.  
 Same, Part 5.—The Semitropical Army Worm.  
 Same, Part 6.—The Hop Flea-beetle.  
 Same, Supplement.—Contents and Index.
67. Proceedings of the Nineteenth Annual Meeting of the Association of Economic Entomologists.
68. Papers on Deciduous Fruit Insects and Insecticides.  
 Same, Part 1.—The Pear Thrips.  
 Same, Part 4.—The Lesser Peach Borer.  
 Same, Part 7.—Demonstration Spraying for Codling Moth.  
 Same, Part 9.—The Peach-Tree Barkbeetle.  
 Same, Supplement.—Contents and Index.
69. The Chinch Bug.
70. Reports of the Meeting of Inspectors of Apiaries, San Antonio, Tex., November 12, 1906.
71. The Periodical Cicada.
72. Information Concerning the North American Fever Tick, with Notes on Other Species.

- Bul. 73. Studies of Parasites of the Cotton-boll Weevil.
74. Some Factors in the Natural Control of the Mexican Cotton-boll Weevil.
75. Miscellaneous Papers on Apiculture.  
 Same, Part 1.—Production and Care of Extracted Honey.  
 Same, Part 2.—Wax Moths and American Foul Brood.  
 Same, Part 3.—Bee Diseases in Massachusetts.  
 Same, Part 4.—The Relation of the Etiology (Cause) of Bee Diseases to the Treatment.  
 Same, Part 6.—The Status of Apiculture in the United States.  
 Same, Part 7.—Bee Keeping in Massachusetts.  
 Same, Supplement.—Contents and Index.
76. Fumigation for the Citrus White Fly, as Adapted to Florida Conditions.
77. Hibernation of the Mexican Cotton-boll Weevil.
78. Economic Loss to the People of the United States Through Insects that Carry Disease.
79. Fumigation investigations in California.
80. Papers on Deciduous Fruit Insects and Insecticides.  
 Same, Part 1.—The Codling Moth in the Ozarks.  
 Same, Part 2.—The Cigar Case Borer.  
 Same, Part 3.—Additional Observations on the Lesser Apple Worm.  
 Same, Part 4.—The Pear Thrips and Its Control.  
 Same, Part 5.—The Nut Feeding Habits of the Codling Moth.  
 Same, Part 8.—Tests of Sprays against the European Fruit Leganium and the European Pear Scale.
81. A List of Works on North American Entomology.
82. Some Insects Injurious to Truck Crops.  
 Same, Part 1.—The Colorado Potato Beetle in Virginia in 1908.  
 Same, Part 2.—The Parsnip Leaf-miner. The Parsley Stalk Weevil. The Celery Caterpillar.  
 Same, Part 3.—The Lima-bean Pod-borer. The Yellow-necked Flea-beetle.  
 Same, Part 4.—The Life History and Control of the Hop Flea-beetle.  
 Same, Part 5.—Biologic and Economic Notes on the Yellow-Bear Caterpillar.
82. Same, Part 6.—Biological Notes on Species of *Drabratia* in Southern Texas.  
 Same, Part 7.—Notes on Various Truck-Crop Insects.
84. Fumigation of Apples for the San Jose Scale.
85. Paper on Cereal and Forage Insects.  
 Same, Part 1.—The Lesser Clover-leaf Weevil.  
 Same, Part 2.—The Slender Seed-corn Ground-beetle.  
 Same, Part 3.—The Clover-root Curculio.  
 Same, Part 4.—The Sorghum Midge.  
 Same, Part 5.—The New Mexico Range Caterpillar.  
 Same, Part 6.—Contributions to a Knowledge of the Corn Root-aphis.  
 Same, Part 7.—The Smoky Crane-fly.  
 Same, Part 8.—The Cowpea Curculio.
86. Some Plant Bugs Destructive to Cotton Bolls.
87. Report on the Field Work Against the Gipsy Moth and the Brown-tail Moth.
89. The Grape Root-worm with Special Reference to Investigations in the Erie Grape Belt from 1907 to 1909.
94. Insects Injurious to Forests and Forest Products. Part 1.—Damage to Chest-nut Telephone Poles by Wood-boring Insects.

## BULLETINS (TECHNICAL SERIES.)

In applying for these bulletins the name of the Bureau as well as the number of the bulletin should be given, as "Bureau of Entomology, Bulletin, Tech. Ser., No. 3."]

- Bul. 3. Revision of the Nematinae of North America, a Subfamily of Leaf-feeding Hymenoptera of the Family Teuthredinidae.
4. Some Mexican and Japanese Injurious Insects Liable to be Introduced into the United States.
6. The San Jose Scale and Its Nearest Allies.
7. Revision of the Tachinidae of America North of Mexico.
9. The Life History of Two Species of Plant-lice Inhabiting Both the Witch-hazel and Birch.
10. The Social Organization and Breeding Habits of the Cotton-protecting Kelep of Guatemala.
12. Miscellaneous Papers.
- Same, Part 1.—Catalogue of Recently Described Coccidae.
- Same, Part 2.—Habits and Life Histories of Some Flies of the Family Tabanidae.
- Same, Part 3.—A Contribution to Our Knowledge of the Thysanoptera of California.
- Same, Part 4.—New Genera and Species of Aphelininae, with a Revised Table of Genera.
- Same, Part 5.—The More Important Aleyrodidae Infesting Economic Plants, with Description of a New Species Infesting the Orange.
- Same, Part 6.—A Record of Results from Rearings and Dissections of Tachinidae.
- Same, Part 7.—The Orange Thrips.
- Same, Part 8.—Biological Studies on Three Species of Aphididae.
- Same, Part 9.—A New Genus of Aleyrodidae, with Remarks on Aleyrodes Nubifera.
13. A Revision of the Tyroglyphidae of the United States.
14. The Bacteria of the Apiary, with Special Reference to Bee Diseases.
15. A Revision of the Ixodidae, or Ticks of the United States.
16. Papers on Coccidae or Scale Insects.
- Same, Part 1.—The National Collection of Coccidae.
- Same, Part 2.—New Species of Diaspine Scale Insects.
- Same, Part 3.—Catalogue of Recently Described Coccidae.
18. The Anatomy of the Honey Bee.
19. Technical Results from the Gipsy Moth Parasite Laboratory. Part 1.—The Parasites Reared or Supposed to have been Reared from the Eggs of the Gipsy Moth.
- Same, Part 2.—Descriptions of Certain Chalcidoid Parasites.
20. Technical Papers on Miscellaneous Forest Insects. Part 1.—Contributions Toward a Monograph of the Bark-weevils of the Genus *Pissodes*.

## CIRCULARS.

[In applying for these circulars the name of the bureau as well as the number of the circular should be given as "Bureau of Entomology, Circular No. 4."]

- Circ. 4. The Army Worm.
5. The Carpet Beetle, or "Buffalo Moth."
6. The Mexican Cotton-boll Weevil. Spanish edition.
7. The Pear-tree Psylla.
8. The Imported Elm Leaf-beetle.
9. Cankerworms.

## Circ. 12. The Hessian Fly.

14. The Mexican Cotton-boll Weevil. Spanish edition.
16. The Larger Corn Stalk-borer.
20. The Woolly Aphis of the Apple.
21. The Strawberry Weevil.
23. The Buffalo Tree-hopper.
24. The Two-lined Chestnut Borer.
25. The Ox Warble.
26. The Pear Slug.
28. The Box-elder Plant-bug.
29. The Fruit-tree Bark-beetle.
31. The Striped Cucumber Beetle.
32. The Larger Apple-tree Borers.
34. House Ants.
36. The True Clothes Moths.
37. The Use of Hydrocyanic-acid Gas for Fumigating Greenhouses and Cold Frames.
38. The Squash-vine Borer.
39. The Common Squash Bug.
43. The Pea Aphis.
46. Hydrocyanic-acid Gas Against Household Insects.
47. The Bedbug.
48. The House Centipede.
49. The Silver Fish.
51. Cockroaches.
53. The Yellow-winged Locust.
54. The Peach-tree Borer.
56. The Most Important Step in the Cultural System of Controlling the Boll Weevil.
57. The Greenhouse White Fly.
59. The Corn Root Worms.
60. The Imported Cabbage Worm.
61. Black Check in Western Hemlock.
62. The Cabbage Hair-worm.
63. Root-maggots and How to Control Them.
64. The Cottony Maple Scale.
66. The Joint Worm.
68. The Tobacco Thrips and Remedies to Prevent "White Veins" in Wrapper Tobacco.
69. Some Insects Affecting the Production of Red Clover Seed.
70. The Hessian Fly.
71. House Flies.
72. Key to the Known Larvæ of the Mosquitoes of the United States.
73. The Plum Curculio.
74. The Periodical Cicada in 1906.
75. Requirements to be Complied with by Nurserymen or Others who Make Interstate Shipments of Nursery Stock.
76. List of Publications of the Bureau of Entomology Revised to February 1, 1910.
77. Harvest Mites or "Chiggers."
79. The Brood Diseases of Bees.
80. The Melon Aphis.
81. The Aphides Affecting the Apple.
82. Pinhole Injury to Girdled Cypress in the South Atlantic and Gulf States.

- Circ. 83. The Locust Borer and Methods for Its Control.  
 84. The Grasshopper Problem and Alfalfa Culture.  
 85. The Spring Grain Aphis.  
 86. The Corn Leaf-aphis and Corn Root-aphis.  
 87. The Colorado Potato Beetle.  
 88. The Terrapin Scale.  
 90. The White-pine Weevil.  
 91. Note on the Occurrence of the North American Fever Tick on Sheep.  
 92. Mites and Lice on Poultry.  
 93. The Spring Grain-aphis or so-called "Green Bug."  
 94. The Cause of American Foul Brood.  
 95. The Most Important Step in the Control of the Boll Weevil.  
     Same. French Edition.  
 96. The Catalpa Sphinx.  
 97. The Bagworm.  
 98. The Apple-tree Tent Caterpillar.  
 99. The Nut Weevils.  
 101. The Apple Maggot or "Railroad Worm."  
 102. The Asparagus Beetles.  
 103. The Harlequin Cabbage Bug.  
 104. The Common Red Spider.  
 105. The Rose Slugs.  
 106. The Wheat-straw Worm.  
 107. What Can be Done in Destroying the Cotton-boll Weevil During the Winter.  
 108. House Fleas.  
 109. The Leopard Moth.  
 110. The Green Striped Maple Worm.  
 111. Preparations for Winter Fumigation for the Citrus White Fly.  
 112. Control of the Mediterranean Flour Moth by Hydrocyanic-acid Gas Fumigation.  
 113. The Chinch Bug.  
 115. The Horn Fly.  
 116. The Larger Corn Stalk-borer.  
 118. A Predaceous Mite Proves Noxious to Man.  
 119. The Clover Root-borer.  
 120. The Control of the Brown-rot and Plum Curculio on Peaches.  
 121. The Oyster-shell Scale and the Scurfy Scale.  
 122. The Status of the Cotton-boll Weevil in 1909.  
 123. Methods of Controlling Tobacco Insects.  
 124. The San Jose Scale and Its Control.  
 125. Insects Which Kill Forest Trees.  
 126. Insects Injurious to the Wood of Living Trees.  
 127. Insects Injurious to the Wood of Dying and Dead Trees.  
 129. Insects in Their Relation to the Reduction of Future Supplies of Timber and General Principles of Control.  
 130. The Oak Pruner.  
 131. How to Control the Pear Thrips.  
 132. The Periodical Cicada in 1911.
- [Cir. 16]

## MISCELLANEOUS.

[In applying for these publications the bureau and the full title of the pamphlet should be given.]

- Bibliography of the More Important Contributions to American Economic Entomology. Part 2.—The More Important Writings of B. D. Walsh and C. V. Riley.
- Same. Parts 1, 2, and 3.—Bound in one volume.
- Same. Index to Parts 1, 2, and 3.
- Same. Part 5.—The More Important Writings of Government and State Entomologists and of Other Contributors to the Literature of American Economic Entomology.
- Same. Part 6.—The More Important Writings Published Between June 30, 1888, and December 30, 1896.
- Same. Part 7.—The More Important Writings Published Between December 31, 1896, and January 1, 1900.
- Same. Part 8.—The More Important Writings Published Between December 31, 1899, and January 1, 1905.
- Report upon Cotton Insects.
- Catalogue of the Exhibit of Economic Entomology at the World's Industrial and Cotton Centennial Exposition, New Orleans, 1884-1885.
- Insects Affecting the Orange.
- The Plum Plant-louse.
- A Destructive Borer Enemy of Birch Trees.
- A partial List of the Coccidæ in Ohio.
- National Control of Introduced Insect Pests.
- Report of Committee on Nomenclature.
- The Horn Fly.
- Some Observations on the Spined Soldier Bug.
- Jarring for the Curculio on an Extensive Scale in Georgia, with a List of the Insects Caught.
- The Ox Bot in the United States.
- The Corn Root-Aphis and its Attendant Ant.
- Further Notes on the San Jose Scale.
- Report on the Mexican Cotton-boll Weevil in Texas.
- A New Coccid on Birch.
- The San Jose Scale on Dried Fruit.
- Insect Enemies of the White Pine.
- Insects Affecting the Cotton Plant.
- The Southern Grain Louse.
- The Tobacco Stalk Weevil.
- The Chestnut Weevils, with Notes on Other Nut-feeding Species.
- Insect Photography.
- State and Territorial Laws Relative to Foul Brood.
- Practical Information on the Dendroctonus Enemies of North American Forests.
- The Western Pine Beetle. The Southwestern Pine Beetle. The Roundhead Pine Beetle.
- The Southern Pine Beetle.
- The Mountain Pine Beetle. The Black Hills Beetle. The Jeffrey Pine Beetle.
- The Redwinged Pine Beetle. The Lodgepole Pine Beetle. The Allegheny Spruce Beetle. The European Spruce Beetle.
- The Black Turpentine Beetle. The Red Turpentine Beetle.
- The Arizona Pine Beetle. The Smaller Mexican Pine Beetle. The Larger Mexican Pine Beetle. The Colorado Pine Beetle.
- The Eastern Spruce Beetle. The Engelman Spruce Beetle. The Alaska Spruce Beetle. The Sitka Spruce Beetle.
- The Eastern Larch Beetle.



## INSECT LIFE.

[Devoted to the economy and life habits of insects, especially in their relations to agriculture. Edited by the Entomologist and his assistants.]

Volume I.—Nos. 1 to 12, July 1888, to June, 1889.

Volume II.—Nos. 1 to 12, July, 1889, to June, 1890.

Volume III.—Nos. 1 to 12, August, 1890, to August, 1891.

Volume IV.—Nos. 1, 2, 9 to 12, October, 1891, to August, 1892.

Volume V.—Nos. 1, 2, 3, September, 1892, to July, 1893.

Volume VI.—No. 2, November, 1893, to August, 1894.

Volume VII.—Nos. 1 to 5, September, 1894, to July, 1895.

General Index to the Seven Volumes of Insect Life, 1888-1895.

## FARMERS' BULLETINS.

[The Farmers Bulletins are a series of popular treatises issued by the Department of Agriculture. The following list includes only numbers relating to entomology and should be applied for by number, as "Farmers Bulletin No. 99."]

F. B. 99. Three Insect Enemies of Shade Trees.

120. Insects Affecting Tobacco.

127. Important Insecticides.

145. Carbon Bisulphid as an Insecticide.

155. How Insects Affect Health in Rural Districts.

172. Scale Insects and Mites on Citrus Trees.

178. Insects Injurious in Cranberry Culture.

196. Usefulness of the American Toad.

209. Controlling the Boll Weevil in Cotton Seed and at Ginneries.

223. Miscellaneous Cotton Insects in Texas.

264. The Brown-tail Moth and How to Control it.

275. The Gipsy Moth and How to Control it.

283. Spraying for Apple Diseases and the Codling Moth in the Ozarks.

284. Insect and Fungous Enemies of the Grape East of the Rocky Mountains.

290. The Cotton Bollworm.

344. The Boll-Weevil Problem, with Special Reference to Means of Reducing Damage.

397. Bees.

## SEPARATE REPRINTS FROM THE YEARBOOK.

[In applying for these publications the number of the separate should be given, as "Yearbook Separate 196."]

Ybk. Sep. 196. Smyrna Fig Culture in the United States.

248. Experimental Work with Fungous Diseases of Grasshoppers.

268. Some of the Principal Insect Enemies of Coniferous Forests in the United States.

313. The United States Department of Agriculture and Silk Culture.

355. Insect Injuries to Forest Products.

360. The Annual Loss Occasioned by Destructive insects in the United States.

386. The Principal Insect Enemies of the Peach.

425. Some Recent Studies of the Mexican Cotton Boll Weevil.

433. Lime-sulphur Washes for the San Jose Scale.

442. Notable Depredations by Forest Insects.

472. The Principal Injurious Insects of the Year 1907.

480. Information About Spraying for Orchard Insects.

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